Appln. No.: 10/000,415
Response dated Jul. 19, 2005
Reply to Office action of Apr. 19, 2005

REMARKS

Claims 1-20 are now pending. The Examiner has rejected claims 1-9, 11-16 and 18-20 and objected to claims 10 and 17.

The Examiner has objected to claims 6 and 14 for some formalities. Applicants have amended claims 6 and 14 accordingly to overcome the objections.

The Examiner has objected to claims 10 and 17 as being dependent upon a rejected base claim and indicated that claims 10 and 17 would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. Applicants have added claims 21 and 22 which correspond to claims 10 and 17, respectively, rewritten in independent form and including all the limitations of their base claims and any intervening claims. Accordingly, Applicants believe claims 21 and 22 are allowable.

Claim Rejections under 35 U.S.C. § 102(b)

Claims 11, 12, 13, 15 and 16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Chen (U.S. Patent No. 5,751,725).

With regard to the anticipation rejections, MPEP 2131 states that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California,* 814 F.2d 628, 631 2 USPQ2d 1051, 1053 (Fed.Cir. 1987). MPEP 2131 also states that "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.,* 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Regarding independent claim 11 and its dependent claims (i.e., claims 12-17), claim 11 recites: "[a] method of impairment mitigation in a communications system comprising: generating at least one error estimate of a signal received from a channel; determining if the channel is degraded based on the at least one error estimate; erasing a select symbol of the signal if the channel is degraded; and decoding the signal."

It is respectfully submitted that the referenced art, Chen, fails to disclose the claimed invention of claim 11. More specifically, for example, Chen fails to disclose generating at least one error estimate of a signal. Instead, Chen discusses a SER check detector that generates

7

Appln. No.: 10/000,415
Response dated Jul. 19, 2005
Reply to Office action of Apr. 19, 2005

several SER and uses them to determine the rate at which a current frame was transmitted (col. 5, lines 27-28 and 46-50). Additionally, Chen fails to disclose an error estimate generated for a signal received from a channel. Instead, Chen discloses a SER check detector that uses a decoded signal as provided by a decoder (Fig. 1 and col. 5, lines 19-20). Furthermore, Chen does not disclose a select symbol. Instead, Chen discusses a system in terms of frames.

Therefore, Applicants traverse rejection of claim 11 and its dependent claims 12-17 over the cited reference, Chen, and claims 11-17 are allowable over Chen.

Claim Rejections under 35 U.S.C. § 103(a)

Claims 1, 2, 18 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chennakeshu (U.S. Patent No. 5,406,593) in view of Merriam Webster's Collegiate Dictionary.

Claims 3, 4, and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chennakeshu in view of Merriam Webster's Collegiate Dictionary as applied to claim 2 and further in view of Balachandran (U.S. Patent No 6,215,827).

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chennakeshu in view of Merriam Webster's Collegiate Dictionary as applied to claim 1 and further in view of Olafsson (U.S. Patent No 5,910,959).

Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chennakeshu in view of Merriam Webster's Collegiate Dictionary as applied to claim 1 and further in view of Tiedemann (U.S. Patent No 5,604,730).

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chennakeshu in view of Merriam Webster's Collegiate Dictionary with Tiedemann as applied to claim 7 and further in view of Chen.

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen as applied to claim 11 and further in view of Olafsson.

Claim 20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chennakeshu in view of Merriam Webster's Collegiate Dictionary as applied to claim 18 and further in view of Goodson (U.S. Patent No. 6, 760,385).

8

Appln. No.: 10/000,415
Response dated Jul. 19, 2005
Reply to Office action of Apr. 19, 2005

With regard to an obviousness rejection, MPEP 2142 states that in order for a *prima facie* case of obviousness to be established, three basic criteria must be met, one of which is that the reference or combination of references must teach or suggest all the claim limitations. Further, MPEP 2143.01 states that "the mere fact that references <u>can</u> be combined or modified does not render the resultant combination obvious unless the prior art suggests the desirability of the combination", and that "although a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so'" (citing In re Mills, 916 F. 2d 680, 16 USPQ 2d 1430 (Fed Cir. 1990)). Moreover, MPEP 2143.01 also states that the level of ordinary skill in the art cannot be relied upon to provide the suggestion...," citing Al-Site Corp. v. VSI Int'l Inc., 174 F. 3d 1308, 50 USPQ 2d. 1161 (Fed Cir. 1999) is that the reference or combinations of references must teach or suggest all the claim limitations.

Regarding independent claim 1 and its dependent claims (i.e., claims 2-10), claim 1 recites: "[a] method of impairment mitigation in a communications system comprising: generating at least one error estimate of a signal; determining a channel fidelity metric using the at least one error estimate; and decoding the signal using the channel fidelity metric."

It is respectfully submitted that the referenced art, Chennakeshu, fails to disclose the claimed invention of claim 1. More specifically, for example, Chennakeshu fails to disclose generating at least one error estimate of a signal. Instead, Chennakeshu discusses determining a signal-to-impairment ratio (SIR) as an indicator of channel state information, where the calculation of the SIR utilizes phase angle information of a signal (Abstract). Additionally, Chennakeshu does not disclose calculating a metric using an error estimate. Instead, Chennakeshu discusses calculating a SIR associated with the channel. Furthermore, the Examiner cites calculating the SIR as the equivalent of an error estimate, then cites calculating the SIR as the equivalent of the channel fidelity metric, which in the claimed invention is determined using the generated error estimate. Using the Examiner's reasoning, to anticipate this portion of Applicants' claim, the SIR of Chennakeshu would need to be calculated using the SIR, an impossibility.

Therefore, Applicants traverse rejection of claim 1 and its dependent claims 2-10 over the cited reference, Chennakeshu, and claims 1-10 are allowable over Chennakeshu.

9

Similarly, regarding independent claim 18 and its dependent claims (i.e., claims 19-20), claim 18 recites: "[a] method of impairment mitigation in a communications system comprising: generating at least one error estimate of a signal; determining a channel fidelity metric using the at least one error estimate; generating a branch metric for a decoder; modifying the branch metric based on the channel fidelity metric; and decoding the signal using the modified branch metric."

It is respectfully submitted that the referenced art, Chennakeshu, fails to disclose the claimed invention of claim 18. More specifically, for example, Chennakeshu fails to disclose generating at least one error estimate of a signal. Instead, Chennakeshu discusses determining a signal-to-impairment ratio (SIR) as an indicator of channel state information, where the calculation of the SIR utilizes phase angle information of a signal (Abstract). Additionally, Chennakeshu does not disclose calculating a metric using an error estimate. Instead, Chennakeshu discusses calculating a SIR associated with the channel. Furthermore, the Examiner cites calculating the SIR as the equivalent of an error estimate, then cites calculating the SIR as the equivalent of the channel fidelity metric, which in the claimed invention is determined using the generated error estimate. Again, using the Examiner's reasoning, to anticipate this portion of Applicants' claim, the SIR of Chennakeshu would need to be calculated using the SIR, an impossibility.

Therefore, Applicants traverse rejection of claim 18 and its dependent claims 19-20 over the cited reference, Chennakeshu, and claims 18-20 are allowable over Chennakeshu.

Regarding dependent claim 14, it recites: "[the] method of claim 11 [as stated hereinabove] wherein the signal comprises at least one symbol and wherein generating at least one error estimate comprises: determining at least one constellation point closest to the at least one symbol; determining a distance between the at least one symbol and the at least one constellation point; and squaring the distance."

It is respectfully submitted that the referenced art, Chen, fails to disclose the claimed invention of claim 11 and therefore claim 14. More specifically, for example, Chen fails to disclose generating at least one error estimate of a signal received from a channel. Instead, Chen discusses a SER check detector that generates several SER and uses them to determine the rate at which a current frame was transmitted (col. 5, lines 27-28 and 46-50). Additionally, Chen fails to disclose an error estimate generated for a signal received from a channel. Instead, Chen

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discloses a SER check detector that uses a decoded signal as provided by a decoder (Fig. 1 and col. 5, lines 19-20). Furthermore, Chen does not disclose a select symbol. Instead, Chen discusses a system in terms of frames.

By this response, claims 6 and 14 have been amended, and claims 21 and 22 were added. Based on at least the foregoing, Applicants believe that claims 1-22 are in condition for allowance. If the Examiner disagrees or has questions regarding this submission, Applicants invite the Examiner to telephone the undersigned at (312) 775-8000.

The Commissioner is hereby authorized to charge additional fees or credit overpayments to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

Date: <u>July 19, 2005</u>   Respectfully submitted,

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11